System Assessment and Validation for Emergency Responders (SAVER)

Social Media for Emergency Responders Application Note

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Homeland Security
Science and Technology

FOREWORD

The U.S. Department of Homeland Security (DHS) established the System Assessment and Validation for Emergency Responders (SAVER) Program to assist emergency responders making procurement decisions. Located within the Science and Technology Directorate (S&T) of DHS, the SAVER Program conducts objective assessments and validations on commercially available equipment and systems, and develops knowledge products that provide relevant equipment information to the emergency responder community. The SAVER Program mission includes:

- Conducting impartial, practitioner-relevant, operationally oriented assessments and validations of emergency response equipment; and

- Providing information, in the form of knowledge products, that enables decision-makers and responders to better select, procure, use, and maintain emergency response equipment.

SAVER Program knowledge products provide information on equipment that falls under the categories listed in the DHS Authorized Equipment List (AEL), focusing primarily on two main questions for the responder community: "What equipment is available?" and "How does it perform?" These knowledge products are shared nationally with the responder community, providing a life- and cost-saving asset to DHS, as well as to Federal, state, and local responders.

The SAVER Program is supported by a network of Technical Agents who perform assessment and validation activities. As a SAVER Program Technical Agent, the Space and Naval Warfare Systems Center (SPAWARSYSCEN) Atlantic has been tasked to provide expertise and analysis on key subject areas, including communications, sensors, security, weapon detection, and surveillance, among others. In support of this tasking, SPAWARSYSCEN Atlantic conducted research in order to provide emergency responders with information on social media, which fall under AEL reference number 04AP-09-ALRT Systems, Public Notification and Warning.

Visit the SAVER website on First Responder.gov (http://www.firstresponder.gov/SAVER) for more information on the SAVER Program or to view additional reports on social media or other technologies.

POINTS OF CONTACT

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1. INTRODUCTION

Social media are web-based networks that allow users to communicate and interact with family, friends, colleagues, community groups, and government organizations for the purpose of sharing information and multimedia content. Use of these communications tools has been on the rise within the emergency responder community over the past several years. The benefits range from an ongoing dialog with the public that can aid in more cooperation and resiliency during actual emergencies to crime solving based on input from eye witnesses in the community. While some agencies use social media simply to provide information to the public, others are using it in more collaborative ways as highlighted in the SAVER program's *Innovative Uses of Social Media in Emergency Management* report, which is available at http://www.firstresponder.gov/SAVER.

Many emergency responder agencies may hesitate to establish a social media presence in their jurisdictions due to concerns regarding network security, privacy, and misuse of information. Agencies may also lack staff resources with the familiarity and experience using social media as a valid communication tool. All of these factors can cause a certain level of mistrust of the technology and its potential uses in government. The purpose of this application note is to provide an overview of current social media tools and networks, how social media is used by emergency responders, and the benefits and challenges inherent in social media use. It should be noted that the set of tools and networks available grows and shrinks—one site may suddenly disappear or lose popularity, while others gain popularity.

Information used in this application note was gathered from Internet research and a review of literature on the subject of social media use in public safety agencies.

2. WHO IS USING SOCIAL MEDIA?

Law enforcement, fire services, emergency medical services, and emergency management agencies are incorporating social media into their daily operations and using it as a communications tool for their community outreach programs and emergency response efforts. Informing the public, investigating crimes, gathering intelligence, and soliciting emergency response volunteers are just some of the ways in which these agencies are using social media.

- **Law Enforcement:** The International Association of Chiefs of Police (IACP) found that over 95 percent of 500 law enforcement agencies surveyed in 2013 use social media in daily operations. The agencies surveyed are using social media tools for activities such as criminal investigations, intelligence gathering, and community outreach. Further information on the survey can be found on the IACP's website (http://www.iacpsocialmedia.org/Resources/Publications/2013SurveyResults.aspx).

- **Fire and Emergency Medical Services (EMS):** Fire and EMS agencies often rely on social media during emergency response efforts for dissemination of critical information. Also, social media is an effective platform to connect with volunteers and the community regarding operational activities.

- **Emergency Management:** Preparedness and response to recent large-scale emergencies (e.g., hurricanes, tornadoes, mass shootings) have involved extensive use of social media by government, humanitarian agencies, and the public. Using these collaborative tools, emergency managers are able to disseminate urgent messages

quickly, collect information to formulate response efforts, and improve situational awareness.

- **The Public:** The increased use of smartphones enables instant Internet communication. Social media tools and networks provide a direct connection to families, communities, and government.

3.   OVERVIEW OF SOCIAL MEDIA TOOLS AND NETWORKS

Social media tools and networks can be categorized based on the capabilities they offer to users, their primary strengths, and the level of interaction they provide. These groups, described below, include social networks, media-sharing networks, community discussion forums, blogs, wikis, feed readers and social bookmarking, short message service (SMS), social media management tools, mapping tools, and organizational websites. A table is also included in Section 4 that summarizes the capabilities of social media tools and networks described in this document.

3.1   Social Networks

Social networks are generally described as websites that allow a user to create an account, establish a profile, find other users, and interact with a personalized network of friends, colleagues, and family. Mobile applications are generally available for all social networks (Figure 3-1). Most social networks offer members the ability to manage their privacy settings and preferences for sharing content to limit those who can see their information. Some offer professional upgrades for a nominal fee that provide additional options and features. Facebook and Twitter are the social networks most frequently used by emergency responder agencies and are described below. Other prevalent social networks are also listed in Table 3-1.

Figure 3-1. Law Enforcement Use of Social Media

Facebook: Facebook is a popular social network that allows members to maintain contact and communicate with other users, interact through pages and groups, and broadcast information of interest. On an individual level, users can set up a profile that includes as much detail as desired about their personal and professional life. They can search for other members' pages and request to friend them. These members are now connected and can receive each other's posts, which can include comments, photos, videos, and the user's location. Members can "like" (i.e., follow) the content, which is then noted and can be seen by the originator and people in that person's network. They can also post return comments and share the content within their own personalized network. Users can manage their privacy settings and adjust who can see their content and who they receive content from.

Emergency responder agencies implementing a Facebook account can create an official page, which members of the Facebook community can "like" in order to automatically receive updates. This does not require an approval process, but agencies can control the commenting and posting options available to the public and can ban or delete people. A Facebook page is public and open for viewing; therefore it is an effective broadcast platform that can reach a wide audience for rapid communication of important information. Examples of the types of information that can be disseminated on Facebook include missing persons alerts, shooter information, weather warnings, and emergency preparedness, response, and recovery information. Facebook also provides an opportunity to solicit information from the public. Figure 3-2 shows an example of a fire department's Facebook page as accessed from a smartphone.

Figure 3-2. Fire Department's Facebook Page

Agencies have the option of creating a group as a way of connecting with the public in general, smaller communities of people, or other agencies. Groups can be public, closed, or secret, offering various levels of information access and collaboration. Like Facebook pages, groups also provide controls on commenting and posting by the public. Groups provide emergency responder agencies with a more controlled method of communicating with the public.

The following are a few examples of Facebook pages established by emergency responder agencies:

- Fairfax County Emergency Management at https://www.facebook.com/fairfaxcounty;

- Phoenix Police Department at https://facebook.com/phoenixazpolice; and

- Colorado Office of Emergency Management at https://www.facebook.com/COEmergency.

Twitter: Twitter is a public micro-blogging tool that allows users to publish short messages, called Tweets, containing 140 characters or less. Twitter is also considered a social network since users can establish profiles and sign up to subscribe to, or follow, other users' feeds in order to view their Tweets. Hashtags, commonly used in Tweets, are a form of a metadata tag (i.e., label) identified by a pound sign. This allows users to instantly identify any social media messages by that hashtag topic. Users can publish photos and videos and promote their blogs or organizational websites. Emergency response agencies can use Twitter to spread information and urgent notifications quickly and to a wide audience. Tweets can also include the user's location through a user preference setting for geocodes called geotags (i.e., location labels). Geotags can be a valuable tool to agencies conducting emergency response activities such as locating an individual or group of people who are stranded on a rooftop during a flood.

The following are a few examples of Twitter accounts established by emergency responder agencies:

- New York City Police Department at https://twitter.com/NYPDnews;

- Philadelphia Police at https://twitter.com/PhillyPolice;

- Los Angeles Fire Department at https://twitter.com/LAFD; and

- New Orleans Office of Homeland Security and Emergency Preparedness at https://twitter.com/nolaready.

Other popular social networking sites include the following:

Table 3-1. Other Social Networking Sites

Platform	Capability
Foursquare	Post location at a venue, connect with friends, and link to other social media sites.
Google+™	Establish a profile integrated with other Google products such as YouTube™, Gmail, and Google Maps™. Connect with members to share photos, conduct video conferencing calls and podcasts, and communicate with a circle of friends.
LinkedIn®	Engage in professional networking by posting job listings and establishing contact lists to connect to other professionals.
Myspace	Connect with members primarily in the music industry to share music and information.

3.2   Media-Sharing Networks

Media-sharing networks provide users the ability to upload and share photos, videos, or presentations. These networks specialize in particular types of content and allow users to broadcast their own content within a public forum. They also connect with the user's Facebook and Twitter accounts (as well as other social media accounts) for sharing of content. Photos and videos captured from smartphones can include embedded geotags to enable them to be displayed on a map. Flickr™ and YouTube™ are the media-sharing networks most frequently used by emergency responder agencies today, and are described below. Other prevalent networks are listed in Table 3-2.

Flickr: Flickr has been widely used in the emergency management domain for display of photos relating to emergencies, large-scale disasters, and daily operations. The website allows users to create photo albums, share and organize photos, and label photos with metadata tags that facilitate searches. Smartphone apps enable users to upload pictures immediately to Flickr.

YouTube: YouTube is a social media tool with a large following of users seeking entertainment. However, this tool can also be used for emergency responders to share and report information (e.g., emergencies, incidents, suspicious behavior), investigate crimes, and conduct training. Videos enhance situational awareness because they provide both visual and audio information. Smartphones make video capture and sharing easy, convenient, and timely. This gives the public the opportunity to assist emergency responders by sharing actionable information.

Other popular media-sharing networks include the following:

Table 3-2. Other Media-Sharing Networks

Platform	Capability
Imgur	Host images, create personal galleries and albums, comment, and vote on content (note: content is not filtered)
Instagram	Upload and share photos and short videos and follow other users' feeds
Pinterest	Share and manage theme-based collections of photos
SlideShare	Share presentations, documents, videos, and webinars
Vimeo	View, upload, and share videos
Vine	Create, post, and share video clips up to 6 seconds long

3.3   Community Discussion Forums

Community discussion forums, also called Internet forums, message boards, or bulletin boards, are websites designed to promote free and open discussion within a specific group of people with common interests, such as emergency managers and firefighters. These sites provide the ability to generate discussion on topics (i.e., threads) and follow responses through paths that lead to the original post. Users can start discussion threads, comment on others' messages, and upload files for sharing. Community discussion forums can serve as a valuable source of information and resources for both emergency responder agencies and the public. Third party providers such as IdeaScale and Ning offer agencies various options to build and host a community forum. Examples of community forums related to emergency response include:

- Federal Emergency Management Agency (FEMA) Collaboration Community at http://fema.ideascale.com;

- FEMA National Preparedness Community at http://community.fema.gov;

- Firefighter Nation at http://www.firefighternation.com;

- First Responder Communities of Practice at https://communities.firstresponder.gov; and

- GovLoop at http://www.govloop.com.

3.4   Blogs

A blog, short for web log, is an online informational or discussion web page that usually focuses on a specific subject. Many blogging tools exist that can be used to create an organizational blog, such as Blogger™, Tumblr, and WordPress. Blogs can be used by emergency response agencies for interactive discussion, gathering feedback, and providing content important to their role in public safety. On a blog, discussion can be started on a topic, then responses can be posted that will be displayed in reverse chronological order. Blogs can be another effective information sharing tool. Some examples of government blogs include:

- U.S. Army Live at http://armylive.dodlive.mil;
- Centers for Disease Control and Prevention (CDC) Public Health Matters Blog at http://blogs.cdc.gov;
- FEMA Blog at http://www.fema.gov/blog; and
- USA.gov Blog at http://go.usa.gov/blog.

3.5   Wikis

Wikis are collaboration websites that allow members to participate in the development of content by easily adding, removing, and editing information. A popular wiki is the online encyclopedia site called Wikipedia®. People use wikis to collaborate, share information on specific topics, and seek information from a variety of sources. Wikis have been set up and used by government agencies and the public during disasters, such as the series of wildfires in southern California in 2007 and the tornado in Joplin, Missouri, in 2011.

3.6   Feed Readers, Social News, and Social Bookmarking

Social media tools called feed readers, social news sites, and social bookmarking sites make reading social media content easy and convenient. Many of these sites perform multiple functions, such as Reddit, which is both a social news site and a social bookmarking site.

Feed readers, also called RSS readers, enable media publishing companies, such as The Huffington Post, CNN, and USA Today to make frequently updated content available to multiple sites on the web simultaneously. Feed readers automatically combine new content from the user's list of desired sources into one application suitable for viewing.

Social news and social bookmarking websites are used to share articles, images and links to other websites. Social news sites contain user-created content on a wide range of subjects that is organized into areas of interest or subsections. These entries can generate interactive discussion and can support "up voting" to boost the popularity rating of the content and cause it to display on the website's front page. Likewise, "down voting" can remove content from the front page. Many social news sites also provide social bookmarking, which is the ability to find articles, images, and videos from other websites and link them to the site. Users can also vote on, comment on, and share bookmarks.

In combination with RSS feeds, social news and social bookmarking can help emergency responder agencies become effective at providing content to their target audience. Examples of feed readers, social news sites, and social bookmarking services are listed in Table 3-3.

Table 3-3. Examples of Feed Readers, Social News, and Social Bookmarking

Name	Website
Bloglines	http://www.bloglines.com
Delicious	http://delicious.com
Digg	http://digg.com
Diigo	https://www.diigo.com
Newsvine	http://www.newsvine.com
NewzCrawler[1]	http://www.newzcrawler.com
Reddit	http://www.reddit.com
Slashdot	http://slashdot.org
StumbleUpon	https://www.stumbleupon.com

[1]Fee Required

3.7   SMS

SMS is a communications protocol allowing the exchange of short text messages between cell phones and other mobile devices. Many emergency response agencies use opt-in alert systems to send messages to those who sign up to receive them. The most evident benefit of this technology is its application within the first 72 hours of an emergency when telephone lines may be overwhelmed. Another benefit is instant communication when a telephone call is not convenient or possible. SMS text messaging is a valuable tool that emergency responders can add to their communications toolset.

3.8   Social Media Management Tools

Numerous applications are available on the Internet that provide social media monitoring, analysis, and metrics. These tools enable an emergency responder agency to understand its social media audience, their topics of interest, and their reaction to published content. Some applications are free or offer upgrades to professional level services, and others require a license or a monthly subscription. The more prominent free services enable an organization to manage multiple social media accounts with one interface, monitor traffic using keyword and other search criteria, manage their message distribution, and monitor the public's comments. Others let you view mashups (i.e., a collection of content from multiple sources displayed in a single interface). These tools also may provide analytics based on an organization's social media presence, such as demographics or location, the number of followers and "likes", and results on comments and trends over time. A few examples of these free services include:

- HootSuite;
- Twazzup; and
- TweetDeck.

Other third party services provide more comprehensive monitoring tools and customization of views and capabilities. For example, a graphic user interface (GUI) can create mapping mashups

showing clustering of social media content. These tools can help organizations monitor and measure traffic on their website or social media accounts in order to evaluate reactions to campaigns, programs, or content. This type of social listening can be valuable in enabling emergency responder agencies to increase their social media presence. Examples of these types of systems include:

- Radian6;

- PIER System;

- SDL Customer Analytics (formerly Alterian); and

- Sysomos.

3.9   Mapping Tools

Mapping tools can be employed in social media to display existing data visually on a map. These tools employ mashups, which are web applications that retrieve content from various data sources and mash it together for display.
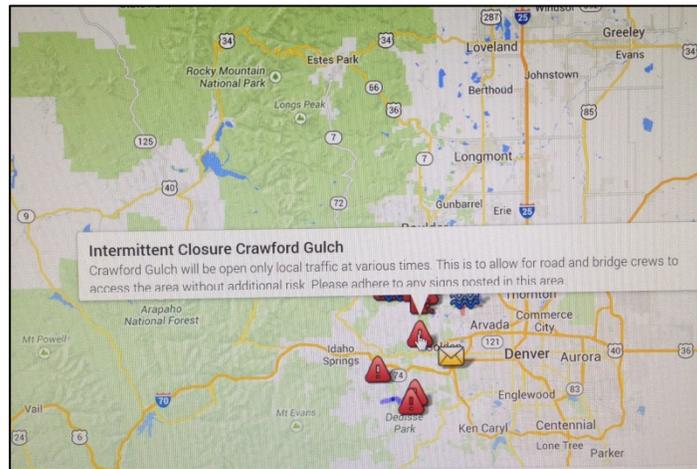
Figure 3-3. Example of a Mapping Mashup

Mapping mashups provide visual context to specific information related to disasters, emergency incidents, or public events and can improve the public's understanding of what is happening or what they should do (Figure 3-3). Emergency response agencies use mashups to map layers of content such as buried infrastructure (e.g., water mains or fiber optic cabling), pre-designated shelters, and even crime data. Mapping mashups can be configured to display photos, videos, or narrative comments posted by the public as well as urgent information posted by emergency response agencies. Tools that can be used to create mapping mashups include the Ushahidi Platform, Esri™ ArcGIS API for JavaScript, and Google Maps Engine™.

3.10   Organizational Websites

Although not considered social media, organizational websites are an effective online communication tool. Many government and emergency response organizations create their own official website that they use to provide a wide variety of information. Some maintain their

website as the official source of information even when combined with an active social media presence. For instance, the City of New Orleans, during Hurricane Isaac in 2012, used their Twitter and Facebook accounts to direct attention to the city's website where the most up-to-date and accurate information was posted. On these websites, links can be included that allow visitors to share content within their own social media networks.

4. SUMMARY OF SOCIAL MEDIA TOOLS AND NETWORKS

Table 4-1 summarizes the social media tools and networks discussed above:

Table 4-1. Summary of Social Media Tools and Networks

Tools and Platforms	Share to Other SM	Aggregate Content	Up/Down Voting	Visual Content	Mapping	Mobile App	Monitoring	Metrics/Analytics	User Interaction
Social Networks									
Facebook	✓		✓	✓		✓			✓
Foursquare	✓					✓			
Google+™	✓	✓	✓	✓		✓	✓		✓
LinkedIn®			✓			✓			✓
MySpace	✓	✓	✓	✓		✓			✓
Twitter	✓		✓	✓		✓			✓
Media-Sharing Networks									
Flickr™	✓		✓	✓	✓	✓			✓
Imgur			✓	✓		✓			✓
Instagram	✓		✓	✓		✓			✓
Pinterest	✓			✓		✓			
Slideshare	✓		✓	✓		✓			✓
Vimeo	✓			✓		✓			
Vine	✓		✓	✓		✓			✓
YouTube™	✓		✓	✓		✓			✓
Community Discussion Forum Tools									
IdeaScale	✓		✓	✓		✓			✓
Ning	✓		✓	✓		✓	✓		✓

Blogging Tools									
Blogger™	✓		✓	✓		✓			✓
Tumblr	✓		✓			✓			✓
WordPress	✓		✓	✓		✓			✓
Mapping/Mashup									
Google Maps Engine™	✓		✓	✓	✓	✓			✓
Google Maps				✓	✓				
Esri™	✓		✓	✓	✓	✓			✓
MapQuest				✓	✓				
Ushahidi Platform	✓		✓	✓	✓	✓			✓
Feed Readers, Social News Sites, and Social Bookmarking Sites									
Bloglines	✓	✓	✓	✓		✓			✓
Delicious	✓	✓	✓			✓			✓
Digg	✓	✓	✓	✓		✓			✓
Diigo	✓		✓			✓			✓
Newsvine		✓	✓	✓		✓			✓
NewzCrawler	✓	✓	✓	✓		✓			✓
Reddit	✓	✓	✓	✓		✓			✓
Slashdot	✓	✓	✓	✓		✓			✓
StumbleUpon	✓	✓	✓	✓		✓			✓
Social Media Management Tools									
HootSuite	✓	✓	✓	✓		✓	✓	✓	✓
PIER System		✓					✓		✓
Radian6	✓	✓	✓	✓	✓	✓	✓	✓	✓
SDL				✓			✓	✓	
Sysomos	✓	✓	✓	✓		✓	✓	✓	✓
Twazzup		✓		✓			✓	✓	
Tweetdeck	✓	✓	✓	✓		✓	✓	✓	✓

5.   BENEFITS OF SOCIAL MEDIA

Social media can benefit emergency responder agencies in a variety of ways. Many agencies conduct two-way communication with the public using social media in order to build trust and

credibility within a community and empower people to take an active role in their own safety. This dialog can also help to establish agencies as an authoritative and accurate information source. Furthermore, social media provides an additional but highly effective method for disseminating emergency information to a wide audience. Other ways in which social media provide value to emergency responder agencies, humanitarian organizations, and the public are described below.

Law enforcement agencies experience improved situational awareness in many aspects of their daily operations through social media use. Examples include using Facebook to identify victims and perpetrators after crimes have been committed, using Twitter to monitor gang activities, and using various social networks to gather information about mob violence and riots and to issue alerts and warnings for shooting incidents.

Fire departments use social media as a tool to educate the public about fire safety and prevention, provide information during emergencies, and keep residents informed. EMS agencies benefit from the information sharing and professional education that social media can facilitate. These agencies can also post training photos and videos on social media networks. This helps to establish the community's trust in the services they provide to keep people safe.

For emergency managers, ongoing communication through social media can help the public be better prepared and cooperative during disasters and other emergencies. This allows emergency managers and humanitarian agencies to be more effective and timely in their response and recovery efforts. Figure 5-1 shows Twitter communication during a storm emergency. Social media provides the public the means to receive up-to-date information, news, and be a part of an overall response network in their community through the sharing of video, photos, and information.
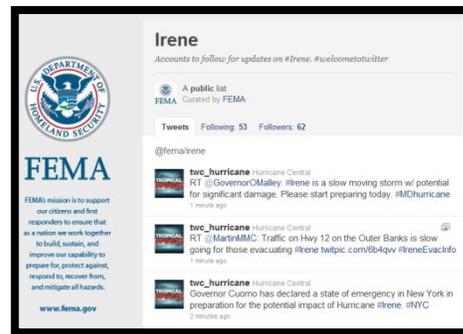

Figure 5-1. Twitter Communication During Storm Emergency

6.   SOCIAL MEDIA CHALLENGES

Although emergency responders benefit from social media in many ways, they can also face a number of challenges in implementing a social media strategy. Some of those challenges are listed below and should be considered when establishing a social media presence.

- **Privacy and legal issues:** Agencies need to be concerned about displaying personally identifiable information, questionable images, and language on their social media accounts;

- **Rumor control and misinformation:** Ensuring that all content posted on social media accounts and websites is verified as accurate and timely is important in maintaining trust within the community. Additionally, agencies should be wary of

fake accounts established in their name that are meant to create confusion or mislead the public;

- **Lack of resources:** Agencies must have the necessary staff to maintain social media accounts and websites, monitor and analyze traffic for extraction of actionable information, and keep up with trends and updates; and

- **Information oversaturation:** A social media page that is inundated with unrelated information can lose credibility as an authoritative information source.

7.   SUMMARY

Social media is gaining popularity in the emergency response community. Emergency managers and humanitarian agencies have been using social media tools and networks for some time, especially for large-scale emergencies and natural disasters. Social media use in law enforcement is also increasing for activities, such as criminal investigations, gang monitoring, and community outreach and involvement. Benefits for emergency responders include rapid communication of critical information, involving the community in their own safety, and establishing a trusted relationship with the public. While there is a host of information already published on social media use for emergency responders, this application note has provided a broad overview of social media terms, tools, and networks that may be helpful to agencies considering implementing a social media presence.

APPENDIX A. ADDITIONAL INFORMATION

References and additional information for social media tools and networks are provided below.

Community Engagement and Social Media Best Practices, Virtual Social Media Working Group and DHS First Responders Group, https://communities.firstresponder.gov/DHS_VSMWG_Community_Engagement_Formatted_May_2013_FINAL.pdf.

Community Engagement Guidance and Best Practices, First Responder Communities of Practice Virtual Social Media Working Group, http://www.hsdl.org/?view&did=722650.

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Social Media Strategy, Virtual Social Media Working Group and DHS First Responders Group, http://www.firstresponder.gov/TechnologyDocuments/Virtual%20Social%20Media%20Working%20Group%20VSMWG%20Social%20Media%20Strategy.pdf.

Survey: Questions for Agencies Using Social Media, IACP Center for Social Media, http://www.iacpsocialmedia.org/Resources/Publications/2012SurveyResults/AgenciesUsingSocialMedia.aspx.